

POSTER 71: Molecular reconstruction of Newcastle disease history in Nigeria

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Since its first records in the 1950s in West Africa, Newcastle disease virus (NDV) has been submitted to several surveillance campaigns that have provided large datasets of samples.

In this study, we analysed 137 complete fusion gene sequences of NDV obtained from poultry sampled between 2006 and 2011 from nine West African countries: Nigeria ($n=94$), Cameroon ($n=6$), Ivory Coast ($n=7$), Mali ($n=7$), Burkina Faso ($n=2$), Mauritania ($n=1$), Niger ($n=6$), Benin ($n=2$), and Togo ($n=2$).

In order to understand the transmission dynamics of NDV in Nigeria and the neighbouring countries, we conducted phylogenetic analyses by considering the temporal and the spatial evolution of the virus: (i) phylodynamic analyses at a regional scale to highlight the evolution of virus mutations over time that may reflect viral adaptations; and (ii) phylogeographic methods to infer the geographical history of NDV genotypes as well as to estimate the rate of virus transmission and spatial spread in the region.

By combining spatial and genetic analyses and using Bayesian stochastic search variable selection (BSSVS) procedure, we identified frequently invoked rates to explain the diffusion process. We revealed the pathways of introduction and transmission of NDV from neighboring countries to Nigeria. We also analysed the Nigerian diffusion pathways in relation to national commercial poultry networks.

By implementing molecular clocking, we estimated the date of virus diffusion and showed longstanding presence of NDV in West Africa, revealing how virus diffusion may enable endemic maintenance.



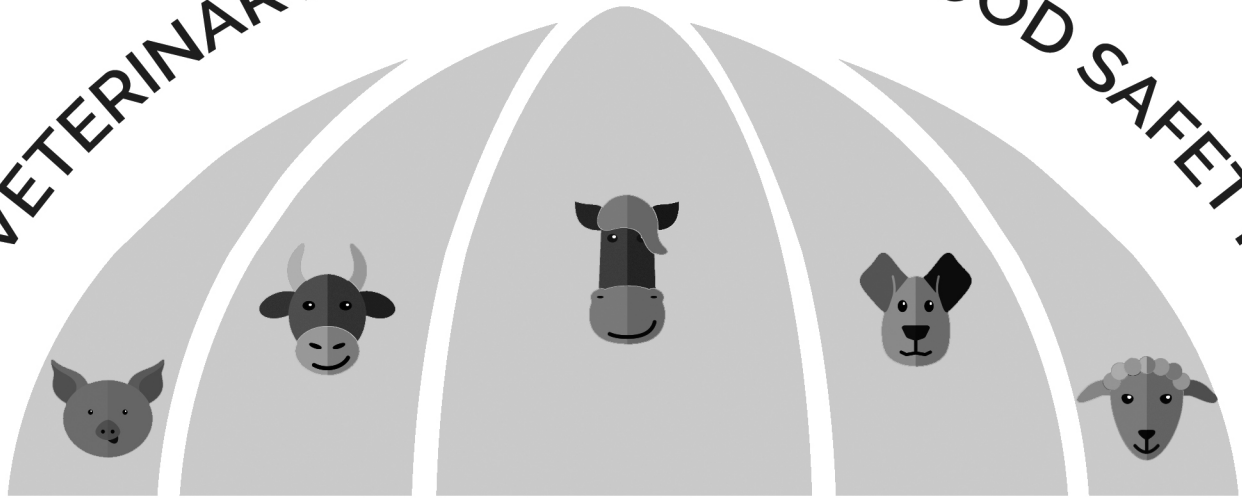
▶ PROGRAMME
& ABSTRACTS

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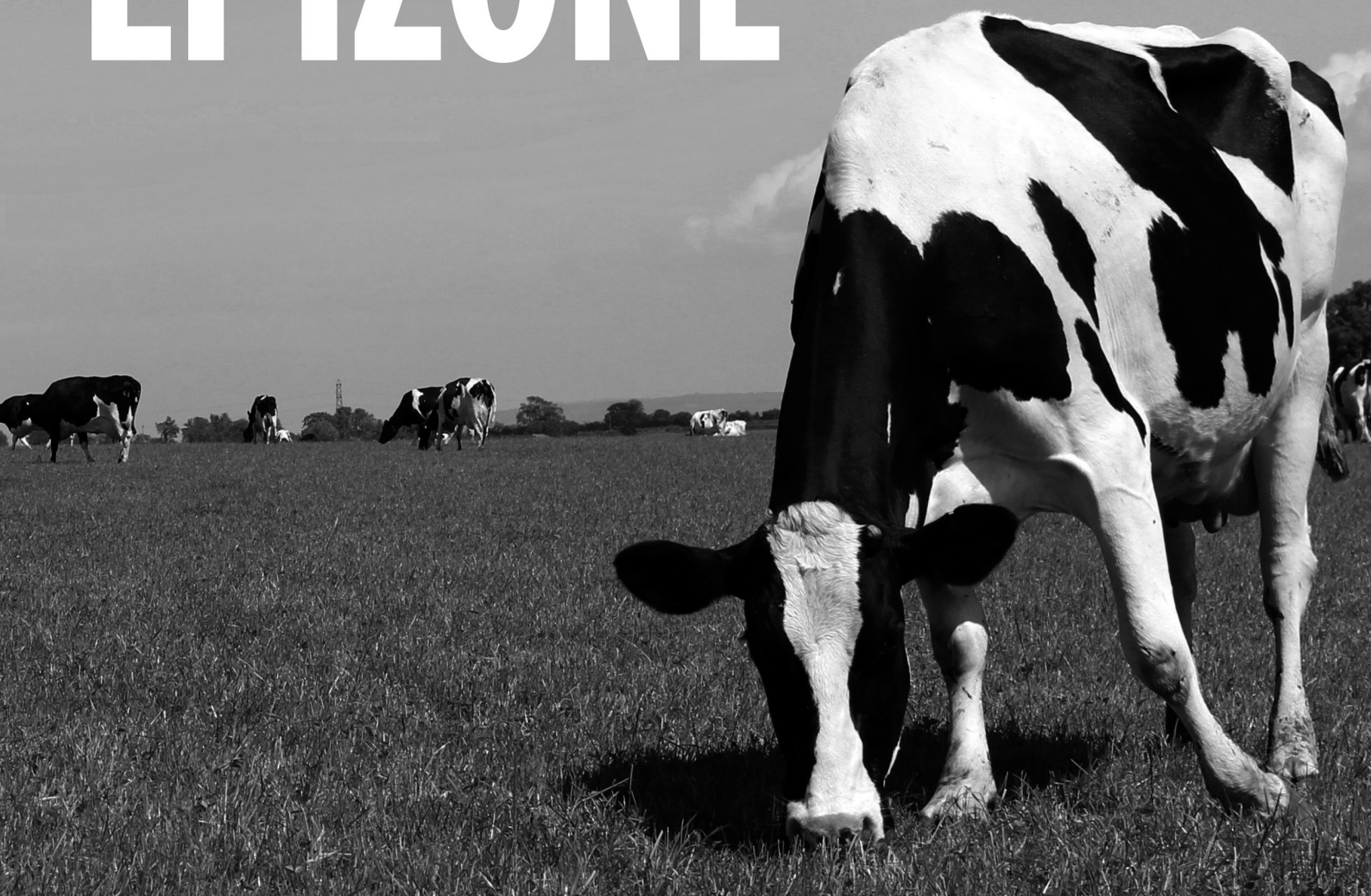
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Welcome 10th Annual Meeting EPIZONE “Going Viral”

It is a great honour and a privilege for me to give you all our warmest welcome to the Xth Annual Meeting of EPIZONE, the first to be celebrated in Spain. INIA-CISA, as the host institution, has been fully committed on this challenge from the beginning, and we do hope that the final result will be satisfactory for participants, sponsors and organizers. We wish to thank specially to them, as this event could not be possible without any of these essential parts. The financial support from sponsors, the availability and contributions from keynote speakers, the high scientific level of oral and poster presentations from participants and, at the end, curious, active and interested assistants, will contribute to the success of the meeting. From the organizing committee I want also to thank the EPIZONE secretariat and coordinator for their continuous help and implication in the effort. Finally, my gratitude to the people at the local and international scientific and organizing committees that have been working together very hard to yield a balanced, wide-scoped and intense (maybe too intense?) programme. Special thanks to Jovita Fernandez Piñero, who has been in charge of many tasks, and has fulfilled a brilliant labour. And will not forget about the enthusiastic Young Epizone people; thank you for your work and for organizing such a well-designed session.

Under the general title of “Going Viral”, and from a *One Health* perspective, we have outlined three concentric circles defining the main topics:

Topic I: Animal Health in a changing World, dealing with global threats for animal health.

Topic II: Threats at the European border, paying attention to diseases in the neighbouring areas.

Topic III: Current challenges inside Europe, where the main diseases affecting the European countries will be discussed.

As in previous EPIZONE meetings, diagnostics, intervention strategies, epidemiology and surveillance, risk analysis and some other aspects will be approached by recognized experts in specific sessions. Many diseases which are familiar to us will receive attention, from Foot and Mouth Disease to West Nile Virus Disease or the more recent episodes by Lumpy Skin Disease, Pest des Petits Ruminants and some others. African Swine Fever and Bluetongue have been the most “popular” diseases among contributors, this revealing their current relevance.

I hope that the efforts of contributors, sponsors, participants and organizers will provide an opportunity for the “epizootic community” to work together, to plan new initiatives, to interact and to share a good time in Madrid.

Victor Briones

Acknowledgements

We are very grateful to the following companies for sponsoring the 10th Annual EPIZONE meeting:

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